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EXAMINER
BAREFORD, KATHERINE A

ART UNIT	PAPER NUMBER
1762	18

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Please find below and/or attached an Office communication concerning this application or proceeding.

AS-18

Office Action Summary	Application No. 09/856,335	Applicant(s) LUGSCHEIDER, ERICH	
	Examiner Katherine A. Bareford	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2003* (and 3/26/03)

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *2-9,15-21,23,25-27 and 29-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,10-14,24,28 and 32-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers Claim 22 is cancelled

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claim 11 and 13 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 11 does not further limit claim parent claim 1, because claim 11provides the limitation of "an on-line controlled plasma spray process" and claim 1 provides for an "on-line controlled plasma spraying" which would provide the same feature.

Claim 13 does not further limit parent claim 1, because claim 13 provides the limitation that the material to be sprayed has at least 20% by weight of magnetite, and claim 1 also provides that the material to be sprayed has at least 20% by weight of magnetite.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10, 13-14, 28 and 34-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10, line 2, "powder fed" is vague and indefinite, because claim 1 does not actually require the use of a powder. No amendment has been provided to correct claim 10, nor has any argument against this rejection been made. Therefore the rejection is maintained.

Claim 10, line 3, "the spray flame" lacks antecedent basis. No amendment has been provided to correct claim 10, nor has any argument against this rejection been made. Therefore the rejection is maintained.

Claim 13, line 2, "thermal spraying" is vague and indefinite as worded, since this term is not used in claim 1. No amendment has been provided to correct claim 13 as to this issue, nor has any argument against this rejection been made. Therefore the rejection is maintained.

Claim 13, line 5, "$FeFe_2O_4$" should apparently be "Fe_2O_4" to correspond to claim 1, line 5. No amendment has been provided to correct claim 13 as to this issue, nor has any argument against this rejection been made. Therefore the rejection is maintained.

Claim 28, line 2, "thermal spraying" is vague and indefinite as worded, since this term is not used in claim 1. No amendment has been provided to correct claim 28 as to this issue, nor has any argument against this rejection been made. Therefore the rejection is maintained.

Claim 34, line 3, "high-speed" is vague and indefinite as to what velocity is required.

Claim 34, line 3, "high-speed flame spraying" is confusing as worded, because "flame spraying" and "plasma spraying" are two different forms of the more generic thermal spraying. As a result, flame spraying would not be a subset of "plasma spraying".

Claim 34, lines 3-4, "plasma spraying" is confusing as worded, because it is unclear how "plasma spraying" would be a subset of the "plasma spraying" of line 2.

Claim 34, lines 4, "high-powered" is vague and indefinite as to what amount of power is required.

Claim 34, line 5, "one-line controlled wire-flame spraying" is confusing as worded, because "flame spraying" and "plasma spraying" are two different forms of the more generic thermal spraying. As a result, flame spraying would not be a subset of "plasma spraying".

Claim 34, lines 5-6, "thermal spraying" is confusing as worded, because "plasma spraying" is a specific form of the more generic "thermal spraying". As a result, "thermal spraying" would not be a subset of "plasma spraying".

Claim 34, line 6, "arc wire spraying" is confusing as worded, because "arc wire spraying" and "plasma spraying" are two different forms of the more generic thermal spraying. As a result, arc wire spraying would not be a subset of "plasma spraying".

Claim 35, line 2, "plasma spraying comprises plasma spraying" is confusing as worded, because "plasma spraying" as first worded would be the same as "plasma spraying" as secondly worded, and therefore it is unclear what limitation is provided.

The other dependent claims do not cure the defects of the claims from which they depend.

--- In the amendment, applicant argues on page 5 as to the use of the terms "high power" and "high speed" (now in claim 34), arguing that there are standard technical terms with well defined meanings to those skilled in the art. However, applicant has provided no showing that this is the case or as to what these meanings are. Therefore, the rejection is maintained.

Double Patenting

4. Applicant is advised that should claim 28 be found allowable, claim 33 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

In this case both claims 28 and 33 claim that the material to be sprayed has more than 30% by weight magnetite.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 10, 12-14, 24, 28 and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US 5143746) in view of Savkar et al (US 5047612).

Inoue teaches a process form producing a wear resistant layer on a substrate by spraying an iron oxide based material to the substrate. Column 1, lines 5-20. The material to be sprayed can be 100 percent magnetite. Column 2, lines 5-15, column 4, lines 35-65 and column 5, lines 15-30. The material can be sprayed by a plasma spraying process. Column 3, lines 50-68 and column 5, lines 30-68 (see the methods of Table 1 and 2). The material can be sprayed in the form of a powder. Column 4, lines 45-60 and column 5, lines 30-68 (see the particle sizes of Tables 1 and 2). Because of the material sprayed and the layer provided the coating would inherently be corrosion resistant.

Claim 12: the spray process can be a water plasma spray process. Column 3, line 65 through column 4, line 2 and column 5, lines 30-68 (see the methods of Tables 1 and 2).

Claims 13-14, 28, 33: the material can be 100 percent magnetite or pure magnetite. Column 2, lines 5-15, column 4, lines 35-65 and column 5, lines 15-30.

Claim 24: the powder size can be 5-40 or 40-100 or 40-150 microns, for example. See column 5, lines 30-68 (see the particle sizes of Table 1 and 2).

Claim 32: the powder size can be 5-40 or 40-100 microns, for example. See column 5, lines 30-68 (see the particle sizes of Table 1 and 2).

Claim 35: The material can be sprayed by a plasma spraying process. Column 3, lines 50-68 and column 5, lines 30-68 (see the methods of Table 1 and 2).

Inoue teaches all the features of these claims except the on-line monitoring and control system (claim 1+), with monitoring of the amount of powder fed (claim 10).

However, Savkar teaches a method and apparatus for controlling the deposition of a powder in a plasma spray process, where the spray process is monitored by an on-line system. See column 1, lines 5-15 and 50-68. The system monitors the impact point of the material forming the layer of material on the substrate. See column 3, lines 15-30 and column 4, lines 45-60 and figure 1. The system also provides on-line monitoring and control of the powder feed rate to the plasma flame. See figure 1 and column 5, line 60 through column 6, line 15. This system provides for optimized deposition of the coating on the target substrate. See column 2, lines 15-50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Inoue to use the on-line monitoring and control system suggested by Savkar in order to provide optimized deposition of the coating onto the substrate because Inoue teaches a plasma spray system of depositing magnetite onto a substrate surface and Savkar teaches the desirability of using an on-line monitoring and control system when plasma spraying in order to optimize the deposition of the coating.

7. Claims 11 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue in view of Savkar as applied to claims 1, 10, 12-14, 24, 28 and 32 above, and further in view of Yoshinaka et al (US 5158643).

Inoue in view of Savkar teaches all the features of this claim except the air as plasma gas. Inoue does teach that the spray coating is conducted in a neutral gas atmosphere not having an extreme oxidizing or reducing nature. See column 3, lines 50-55. For example, argon or mixtures of argon and nitrogen are used. See column 3, lines 55-60.

Yoshinaka teaches that when plasma spraying material, it is conventional known to provide plasma fueled by air, argon, hydrogen or helium, etc. see column 9, lines 45-55.

It would have been obvious to one of ordinary skill in the art to modify Inoue in view of Savkar to use air as part of the plasma fuel gas as suggested by Yoshinaka with an expectation of desirable results, because Inoue in view of Savkar teaches using a plasma gas such as argon/nitrogen to provide an atmosphere that is not of an extreme oxidizing or reducing nature, and Yoshinaka teaches that it is conventionally known to use air as part of plasma gas mixture. While air would be oxidizing, one of ordinary skill in the art would understand that it could be mixed with the described argon/nitrogen to provide a not "extreme" oxidizing mixture, which would allow for a more cost efficient gas.

Priority

8. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on Nov. 25, 1998. It is noted, however, that applicant has not filed a certified copy of the 198 54 512.6 application as required by 35 U.S.C. 119(b).

The only priority document received was a copy of 198 57 737.0, filed Dec. 15, 1998.

Response to Arguments

9. Applicant's arguments filed Feb. 27, 2003 and 3/26/03 have been fully considered but they are not persuasive.

Applicant's Arguments

Applicant argues that Inoue teaches the deposition of a thick coating and teaches away from a thin coating as deposited by applicant. Furthermore, a uniform layer is not required by Inoue. Applicant argues that the present invention requires a thin, uniform coating, which necessitates the use of the computer controlled magnetic deposition of the present invention. Therefore, according to applicant, Inoue does not teach or suggest combination with any other piece of prior art to produce a thin, uniform magnetite layer. Furthermore, applicant argues that Savkar teaches a monitoring performed by controlling the feed rate of the powder and carrier gas and the amount of carrier gas, while in the present invention, many parameters are measured to provide a sophisticated feedback control. Savkar does not provide a teaching necessary to produce a thin, uniform magnetite layer as provided by the present application. As to the use of Yoshida (claims 11, 35), applicant argues that these claims are allowable for the reasons that claim 1 is allowable.

The Examiner's Response

The Examiner has reviewed these arguments, however, the rejection is maintained. While applicant has argued that Inoue and Savkar do not teach or suggest the thin, uniform magnetite layer of the present invention, the Examiner notes that the present claims do not require either a thin or a uniform layer, so the arguments in regard to the thinness and uniformity are moot.

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Similarly, as to applicant's arguments that the present invention uses a different monitoring than Savkar, the Examiner notes that the specific monitoring features are not in the examined claims. Looking at the claims as worded, the Examiner finds that one of ordinary skill in the art would desire to optimize the deposition of Inoue by providing a on-line monitoring and control system to provide an optimized coating, regardless of thickness, as suggested by Savkar. See the discussion in the rejection above. As to claims 11 and 35, since the rejection of claim 1 is maintained for the reasons discussed above, the rejection of claims 1 and 35 is also maintained.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (703) 308-0078. The examiner can normally be reached on M-F(7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-93109310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Katherine A. Bareford

KATHERINE A. BAREFORD
PRIMARY EXAMINER
GROUP ~~1100~~ 1700